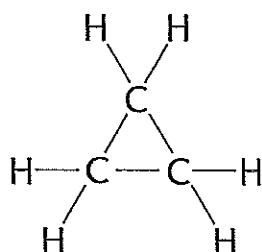


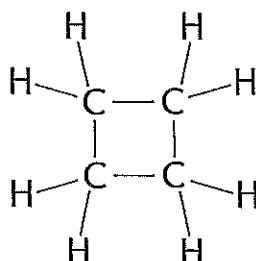
1. Cycloalkanes are a family of hydrocarbons.

The simplest members of the family are shown below.

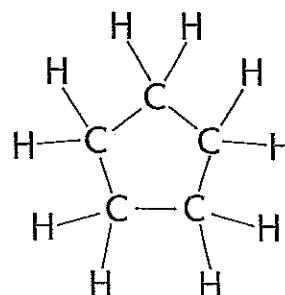
cyclopropane



cyclobutane



cyclopentane



- a Why are these hydrocarbons saturated?
..... [1]
- b Write the name and molecular formula of the cycloalkane containing six carbon atoms.
..... [2]
- c Propene has the same molecular formula as cyclopropane.
 - (i) Draw the structural formula of propene.

[1]

- (ii) What name is given to compounds with the same molecular formulae but different structural formulae?
..... [1]

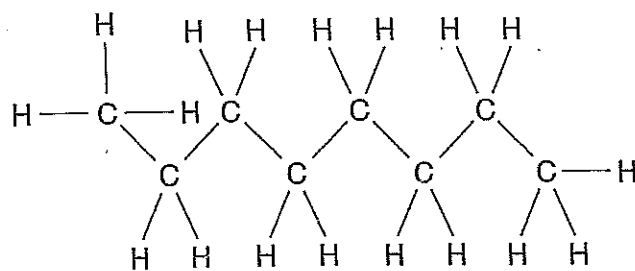
- (iii) Describe a test that could be used to distinguish propene and cyclopropane.
..... [3]

- d (i) Write a balanced symbol equation for the burning of cyclopropane in a plentiful supply of air.
..... [3]

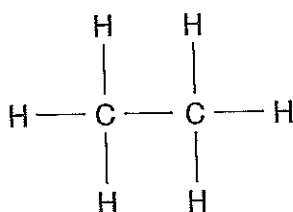
- (ii) How would the products be different if the amount of air available was restricted?
..... [1]

(Total 12 marks)

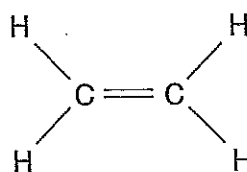
2 The diagrams below show the structural formulae of three hydrocarbons.



Molecule a



Molecule b



Molecule c

(a) Which of these hydrocarbon molecules is an alkene?

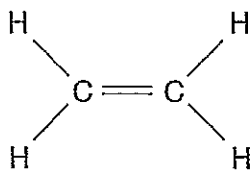
..... (1 mark)

(b) What is the name of hydrocarbon molecule b?

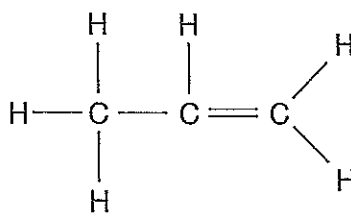
..... (1 mark)

3. Answer all parts of the question.

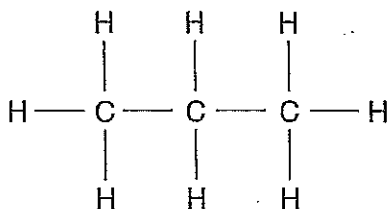
(a) Name these hydrocarbons.



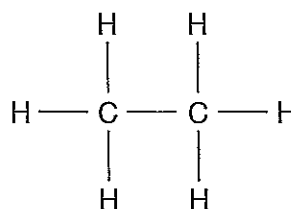
(i)



(ii)



(iii)



(iv)

(4 marks)

(b) Which of these hydrocarbons belong to the alkane family?

(c) Which of these hydrocarbons could be described as unsaturated?

(d) Which of these hydrocarbons would react with bromine water?

(e) Describe the colour change that would be observed when bromine water reacts with an alkene.

no colour change